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Neil,

After a bit more thought I would like to point out a couple of items regarding the ET117 cracked membrane and ET 104 flight readiness review. With respect to fracture control, the membrane cracking is an escape since nothing in the fracture control procedure resulted in the detection of the defect. Acceptance of parent metal on the basis of post age and form NDE' was based on the likelihood of developing defects in the panels prior to or during these operations. Clearly we have an incident where defects were generated in the material following these operations and the fracture control plan may need to be modified to reflect this condition. Additionally, the single imminent failure test we performed on the rib membrane area did not survive the four mission life requirement. This specimen failed cryogenically at 95% of the imminent failure load. The point being that the proof test in this area does not guarantee mission life based on the simulated service mission profile used in lot acceptance of the material. Again, from a technical fracture control perspective this puts us in a risk assessment mode. Perhaps the entire point of the FRR presentation was to address this additional risk, but I'm not sure that was reflected in the presentation.

With respect to the ET fracture control plan I think that the MSFC FCB should review the plan in light of the ET117 incident and discuss the need for modifications to the plan. For example, if a visual pocket wipe down is what we are relying on for critical flaw detection in the parent metal then that needs to be stated and the risks understood. If additional inspections or approaches are to be considered or incorporated into tank processing then those should be reviewed as well.

With respect to ET104 I think that we are at some additional risk since we have demonstrated that we have an escape in the fracture control plan. That additional risk is mitigated to some extent based on the findings of the fault tree activities, residual strength of the ET117 defect (leak notwithstanding), and the inspection of additional panels, but I'm not sure that the additional risk came across clearly in the presentation.

Please contact me if you have any questions or concerns.

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